In the outstanding Office Action, the proposed drawing changes filed December 27, 2001, were approved. In addition, Claims 1-9, 11-17, and 22 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,857,737 to Kamae et al. (hereinafter "the '737 patent") in view U.S. Patent No. 5,793,045 to DiFilippo et al. (hereinafter "the '045 patent"); and Claim 10 was rejected under 35 U.S.C. §103(a) as being unpatentable over the '737 and '045 patents, further in view of U.S. Patent No. 5,510,644 to Harris et al. (hereinafter "the '644 patent").

In response to the indication in the Office Action that the drawing changes have been approved, submitted herewith is a Letter to the Official Draftsman along with a copy of the corrected drawings.

Amended Claim 1 is directed to a nuclear medical diagnostic apparatus comprising, inter alia: (1) a radiation detector in a form of a single layer including a plurality of semiconductor cells that are arranged in the matrix, detect radiation separately, and output signals representing an energy of the radiation separately; (2) a selection circuit which, in order to select among events wherein the radiation is detected, a specific event wherein radiation derived from a radio isotope injected into a subject is detected and a total energy of not less than two respective signals substantially simultaneously output from not less than two semiconductor cells falls in the predetermined energy window; and (3) a position calculation circuit which calculates an incident position based on positions of said not less than two semiconductor cells. Claim 1 has been amended to clarify that the radiation detector is in a form of a single layer including a plurality of semiconductor cells. The changes to Claim 1 are supported by the originally filed specification and do not add new matter.

Applicant respectfully submits that the rejection of Claim 1 as obvious over the '737 and '045 patents is rendered moot by the amendment to Claim 1 herein.

The '737 patent is directed to a gamma ray detecting unit formed of a plurality of radiation detectors arranged in layers, as shown, for example, in Figures 1 and 2. Using energy and momentum conservation laws, the '737 detecting unit attempts to compute the reaction sequence and the scattering angle of multiple Compton scatterings within the detecting unit. However, Applicant submits that the '737 patent fails to disclose the position calculation circuit recited in amended Claim 1, which calculates an incident position based on the positions of not less than two semiconductor cells, wherein the semiconductor cells are in a radiation detector in a form of a *single layer*.

Turning now to the secondary reference, Applicant respectfully submits that the '045 patent fails to cure the deficiencies of the '737 patent, as discussed above. Rather, the '045 patent merely discloses coincidence detection among multiple detectors. Accordingly, Applicant respectfully submits that independent Claim 1 (and dependent Claims 2-6 and 8) patentably define over the '737 and '045 patents. Moreover, the rejection of dependent Claims 7, 9, and 11 is rendered moot by the cancellation of those claims herein.

Applicant respectfully submits that the rejections of independent Claim 12 (and dependent Claim 13) and independent Claim 14 (and dependent Claims 15-17) are rendered moot by the cancellation of those claims herein.

Claim 22 recites limitations analogous to the limitations recited in amended Claim 1. Moreover, Claim 22 has been amended in a manner analogous to the amendment to Claim 1. Accordingly, for the reasons stated above for the patentability of Claim 1, Applicant respectfully submits that the rejection of Claim 22 is rendered moot by the present amendment to Claim 22.

Applicant respectfully submits that the rejection of Claim 10 as obvious over the '737, '045, and '644 patents is rendered moot by the cancellation of Claim 10 herein.

Thus, it is respectfully submitted that independent Claim 1 (and dependent Claims 2-6 and 8) and independent Claim 22 patentably define over the '737, '045, and '644 patents.

Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believe to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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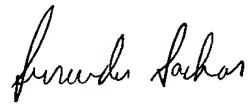

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IN THE CLAIMS

1. (Twice Amended) A nuclear medical diagnostic apparatus, comprising:

[at least one] a radiation detector [, each radiation detector] in a form of a single layer including [a semiconductor cell array having] a plurality of semiconductor cells that (1) are arranged in a matrix, (2) detect radiation separately, and (3) output signals representing an energy of the radiation separately;

a selection circuit which, in order to select, among events wherein the radiation is detected, a specific event wherein radiation derived from a radio-isotope injected into a subject is detected[, in a first case wherein only one of said semiconductor cells in the semiconductor cell array outputs a signal, compares an energy of the signal with a predetermined energy window, and in] and a total energy of [a second case, wherein not less than two semiconductor cells in the semiconductor cell array output] not less than two respective signals substantially simultaneously output from not less than two semiconductor cells[, calculates a total energy of the not less than two signals and compares the total energy with] falls in [the] a predetermined energy window;

a position calculation circuit that [which, in the first case, calculates an incidence position of the radiation based on a position of said semiconductor cell that output the signal and, in the second case,] calculates an incidence position [of the radiation] based on [a position] positions of [only one of] said not less than two semiconductor cells;

a counting circuit configured to count the specific event in association with the calculated incidence position; and

a circuit configured to generate a distribution of radio-isotope in the subject on the basis of a counting result.

2. (Twice Amended) An apparatus according to claim 1, [further comprising an internal coincidence circuit configured to determine the second case on the basis of a time difference among a plurality of signals output from said at least one radiation detector] wherein said position calculation circuit calculates the incidence position based on a position selected from the positions of said not less than two semiconductor cells.

3. (Twice Amended) An apparatus according to claim [1] 2, wherein[, in the second case,] said position calculation circuit compares [the] respective energies of the not less than two respective signals in order to select [only one of said not less than two semiconductor cells] the position.

4. (Twice Amended) An apparatus according to claim [1] 3, wherein[, in the second case,] said position calculation circuit selects, from the positions of said not less than two semiconductor cells, the position of one semiconductor cell that outputs a signal representing a minimum energy.

5. (Twice Amended) An apparatus according to claim [1] 3, wherein[, in the second case,] said position calculation circuit selects [only] the positions of one of said not less than two semiconductor cells based on [the basis of] the respective energies [energy] of the not less than two respective signals.

6. (Twice Amended) An apparatus according to claim [1] 3, wherein[, in the second case,] said position calculation circuit selects, from the positions of said not less than two semiconductor cells, the position of one semiconductor cell that outputs a signal representing

a minimum energy in a first area, and the position of one semiconductor cell that outputs a signal representing a maximum energy in a second area.

7. (Canceled)

8. (Twice Amended) An apparatus according to claim 1, [further comprising a] wherein said selection circuit is configured to calculate time differences between a signal output from one of said plurality of semiconductor cells and signals output from remaining cells of said plurality of semiconductor cells.

9-17. (Canceled)

22. (Twice Amended) A method for generating a distribution of a radio-isotope in a subject with a nuclear medical diagnostic apparatus including [at least one] a radiation detector in a form of a single layer, [each] the radiation detector [including a semiconductor cell array] having a plurality of semiconductor cells arranged in a matrix, comprising:

detecting [a] radiation derived from the radio-isotope with [a] the plurality of semiconductor cells that output[s a] respective signals;

[comparing an energy of the signal with a predetermined energy window in a first case wherein only one of the semiconductor cells in the semiconductor cell array outputs a signal;]

comparing[, in a second case wherein not less than two semiconductor cells in the semiconductor cell array output signals,] a total energy of [the] not less than two respective signals output from not less than two semiconductor cells [signals] with a predetermined energy window; and

calculating an incident position of the radiation based on [a position of the semiconductor cell outputting the signal in the first case and based on] a position of only one

of the not less than two respective signals output from the not less than two semiconductor cells [outputting signals in the second case].